Name: Date:
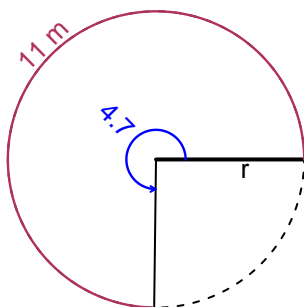
Trig Final (Practice v25)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 11 meters. The angle measure is 4.7 radians. How long is the radius in meters?
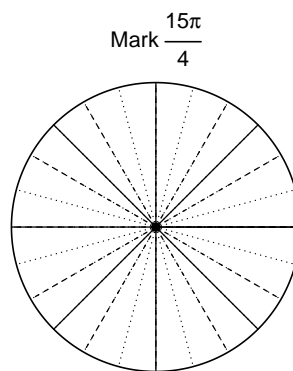

Question 2

Consider angles $\frac{-10\pi}{3}$ and $\frac{15\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{-10\pi}{3}\right)$ and $\sin\left(\frac{15\pi}{4}\right)$ by using a unit circle (provided separately).

Mark $\dfrac{-10\pi}{3}$

Find cos(−10π/3)

Mark $\dfrac{15\pi}{4}$
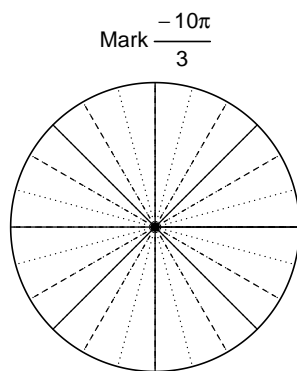
Find sin(15π/4)

Question 3

If $\cos(\theta) = \frac{-16}{65}$, and θ is in quadrant III, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 7.01 Hz, a midline at $y = 3.25$ meters, and an amplitude of 8.53 meters. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).